Integrated Planning and Supporting Analysis Requirements

Johanna Zetterberg, DOE-OE

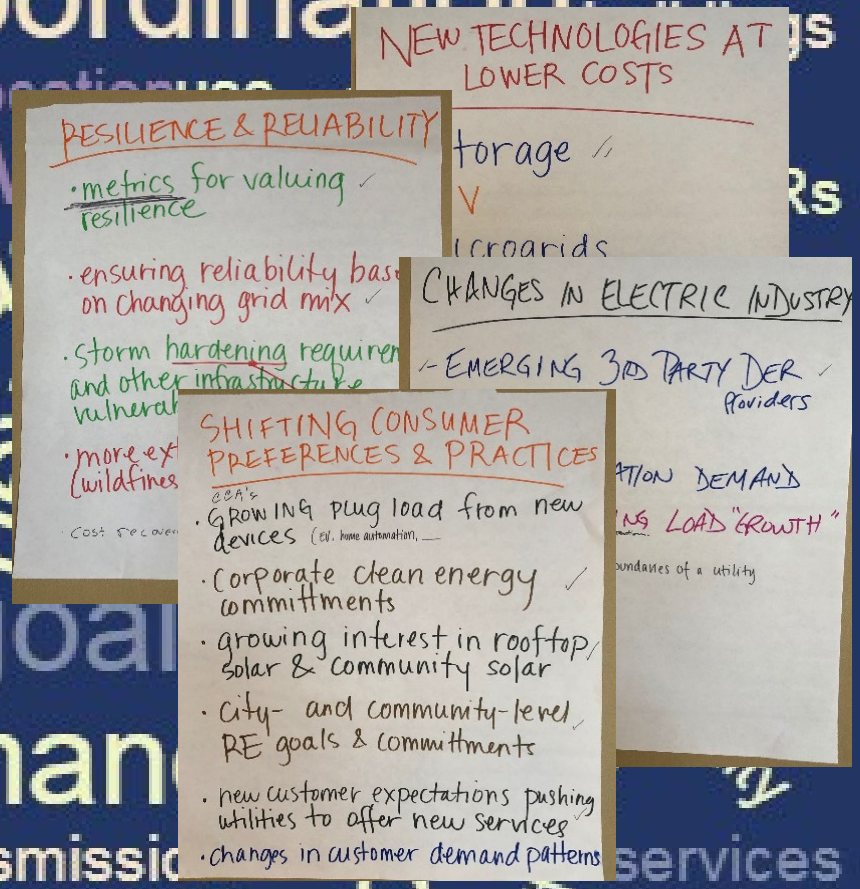
Samir Succar, ICF

Electricity Advisory Committee May 29, 2020

U.S. DEPARTMENT OF ENERGY | OFFICE OF ELECTRICITY

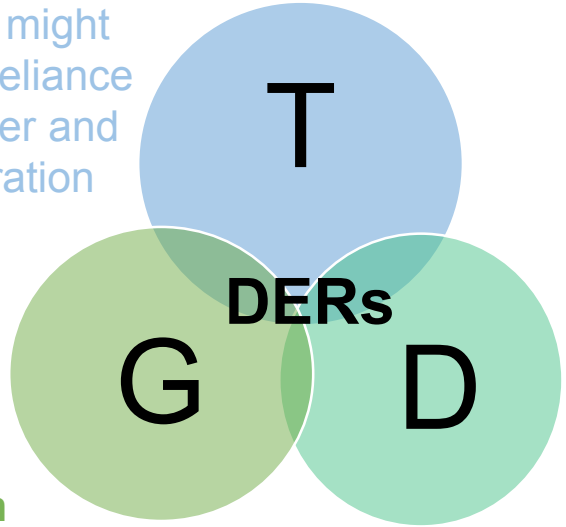
Key Trends Driving Need for Change

1. Resilience and reliability
2. Regulatory trends
3. Coordination needs and benefits
4. Policy/legislative interests
5. Fuel price and other cost uncertainties
6. Shifting consumer preferences / practices
7. Changes in electric industry
8. New technologies at lower costs



Planning and Investment Decisions Could Help Optimize Supply and Demand

Transmission needs might be reduced with less reliance on central station power and increased DER penetration



With growth of DER, the amount and type of **central station generation** needed to balance supply and demand is evolving

Distribution system investment decisions now need to account for the quantity, location, capabilities, and load shapes of resources added to the distribution system

With greater alignment of resource and distribution planning, states & utilities could:

- Improve grid reliability and resilience
- Optimize use of distributed and existing energy resources
- Avoid unnecessary costs to ratepayers
- Support state policy priorities
- Increase the transparency of grid-related investments decisions

NARUC-NASEO Task Force on Comprehensive Electricity Planning

Announced Nov. 2018

Purpose: Develop new pathways for aligned electricity planning

Innovation: Pioneer new tools and roadmaps for aligning planning to meet state needs

Action: Apply insights to directly benefit state action

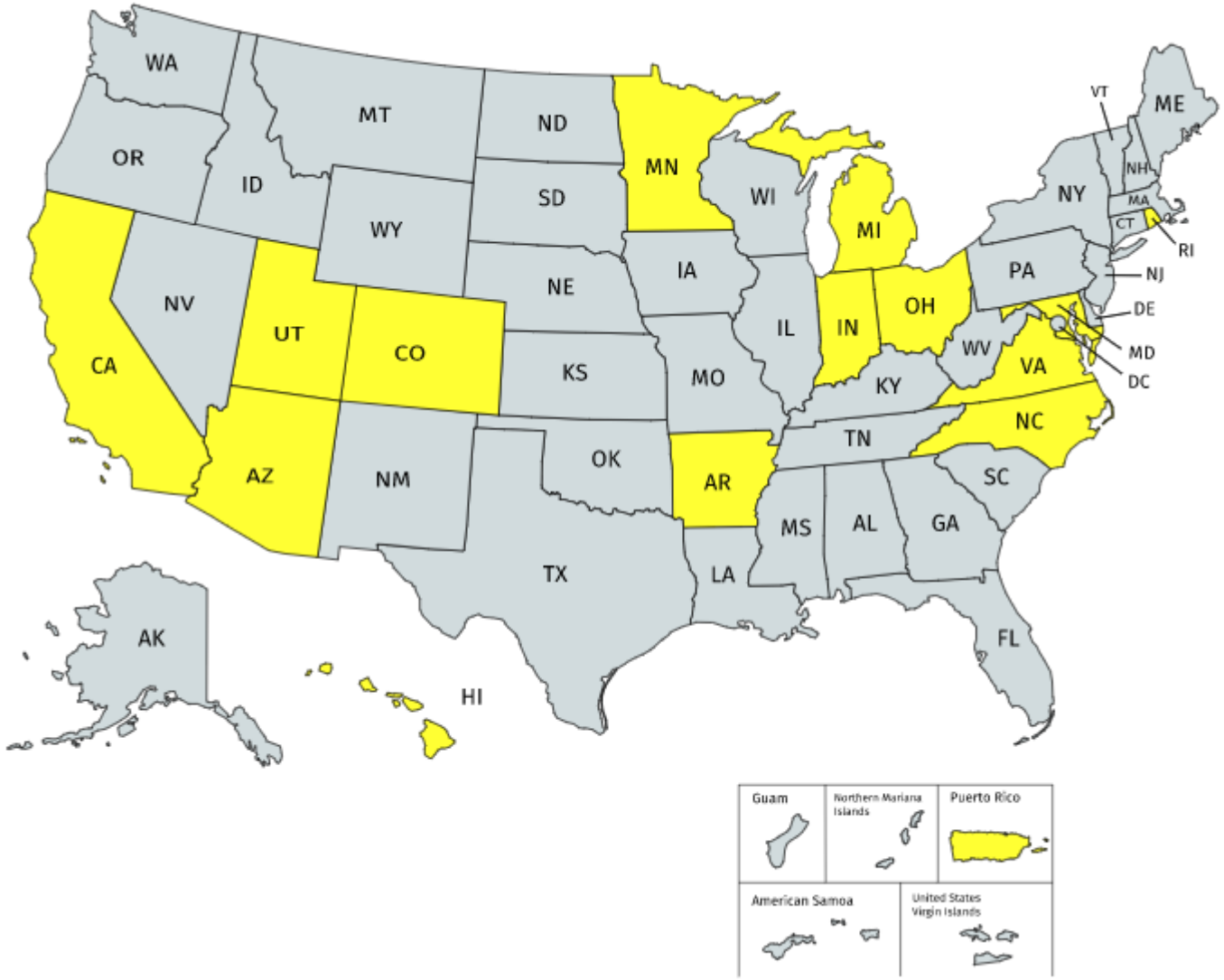
Replication: NARUC and NASEO will publish templates and resources to support all members

NARUC National Association of Regulatory Utility Commissioners

NARUC-NASEO TASK FORCE ON COMPREHENSIVE ELECTRICITY PLANNING

NASEO National Association of State Energy Officials

15 States Represent NARUC & NASEO Members



States are Diverse and Representative:

- Geography
- Market models (e.g., retail competition, wholesale market)
- Planning approaches (e.g., state energy office roles, distribution system planning)
- State goals (e.g., grid mod, resilience, climate, clean energy, economic development)

Participating state profiles

- PUC/SEO agency roles
- Electricity generation mix
- Market overview
- Key state energy policies
- Planning-related proceedings

Five State Teams ("Cohorts")

15 states | 5 cohorts

Vertically Integrated

Coral

- Within organized markets

Tackling alignment of distribution, resource, and transmission planning

- *Pragmatic state; works collaboratively in region; operates in 2 RTOs*

Turquoise

- Outside organized markets

Tackling alignment of distribution, resource, and transmission planning

- *Anticipates range of energy policies; juggles urban vs. rural needs: long distances between load centers; transmission challenges*

Silver

- Outside organized markets

Tackling alignment of distribution and resource planning

- *Coastal state vulnerable to weather-related natural disasters; experiencing flat to declining load*

Amber

- Within organized markets

Tackling alignment of distribution and resource planning

- *State is facing increasing weather-related damages and costs; new transmission and generation siting requests coming in*

Restructured

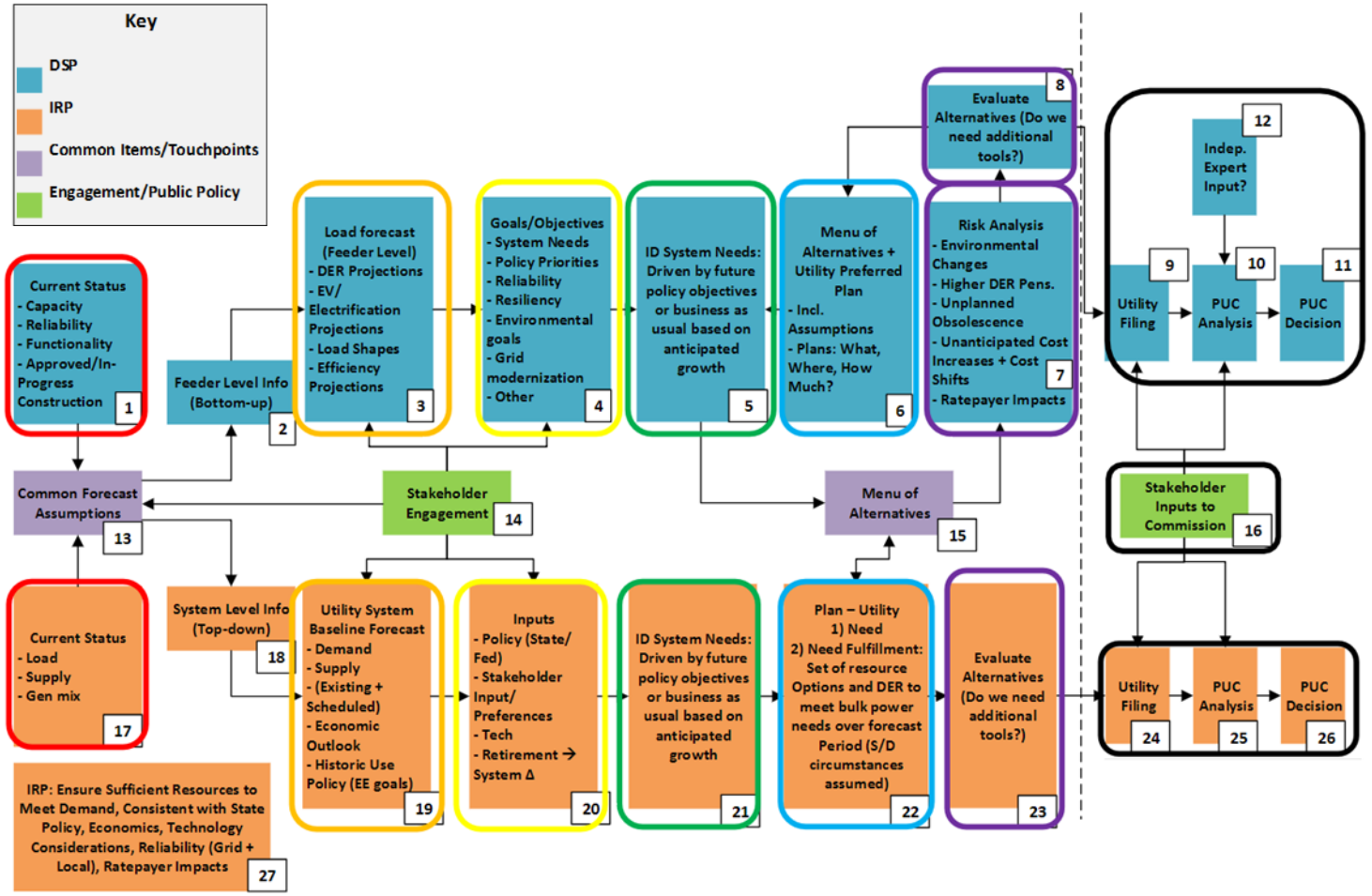
Jade

- Within organized markets

Focused on integrated distribution planning (combined with other state / utility energy planning and programs)

- *Retail competition in state; dynamic policy environment; impacted by cold-weather events*

Illustrative Example of a Cohort Process Map



Building Blocks of Planning

- Establish Planning Assumptions
- Develop Load Forecasts
- Describe the Future Trajectory
- Identify System Needs
- Explore Solutions to Address Gaps
- Evaluate and Apply Criteria to Determine Preferred Solutions
- Finalize Solutions and Publish Plan
- Implement Solutions

Task Force Work Plan

2 years | 4 workshops

We are here

Workshop 1

Identify key trends, articulate guiding principles, map status quo planning processes, begin identifying alignment needs

April 2019

Workshop 2

Refine opportunities for planning process alignment with support from stakeholders and subject matter experts

"Process Maps"

October 2019

Workshop 3

Consider what it takes to operationalize idealized aligned planning processes

"Roadmaps"

Sept. 2020

Workshop 4

Develop State Action Plans to build on the work of the Task Force

November 2020

February 2021: Publish Task Force materials on aligned planning

Task Force Outputs and Resources

Task Force Outputs Expected February 2021

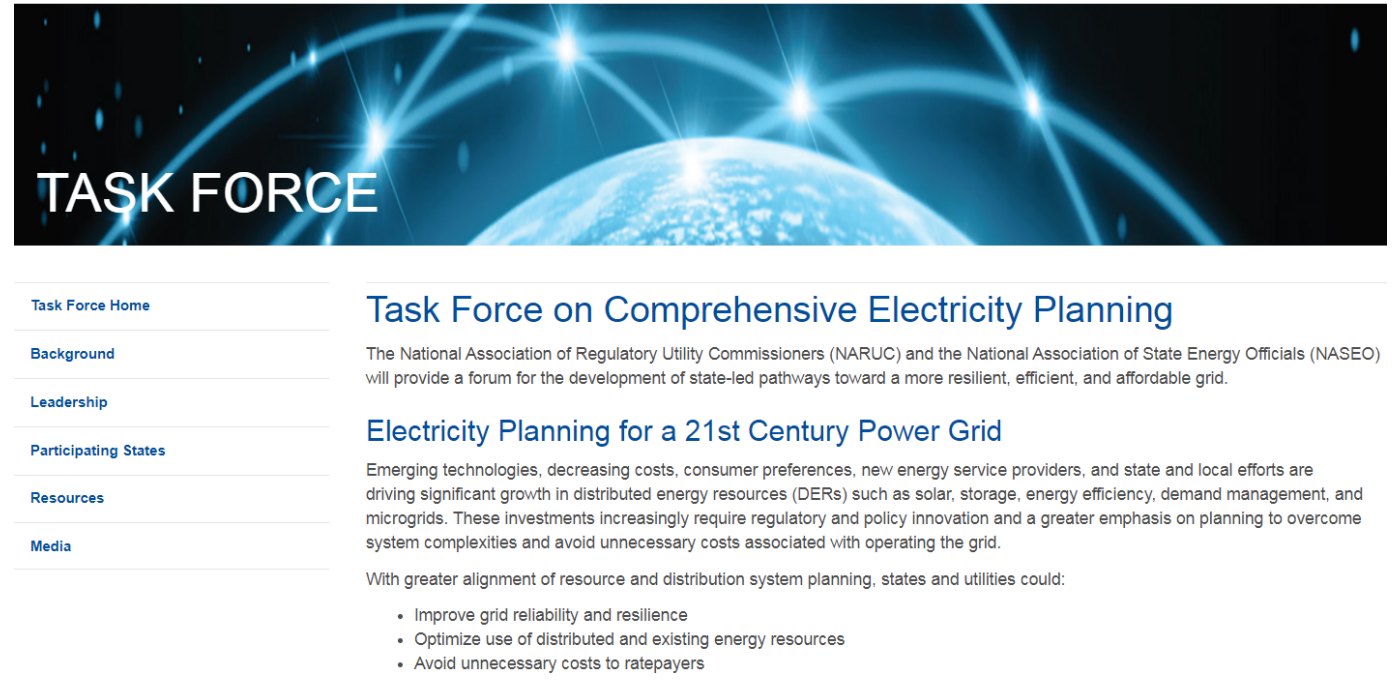
- **Cohort Roadmaps** (5)
  - Process map and narrative description
  - Existing guidance, resources & examples

- **Blueprint for Action** (1)
  - Self-guided workbook for states 16+
  - Mirrors step-wise Task Force activities

- **State Action Plans** (15)
  - Individual state, not cohort
  - Progress toward aligned planning
  - Post-Task Force implementation

NARUC
National Association of Regulatory Utility Commissioners

www.naruc.org/taskforce/



Alignment Across Building Blocks

Reflect policy requirements and stakeholder input

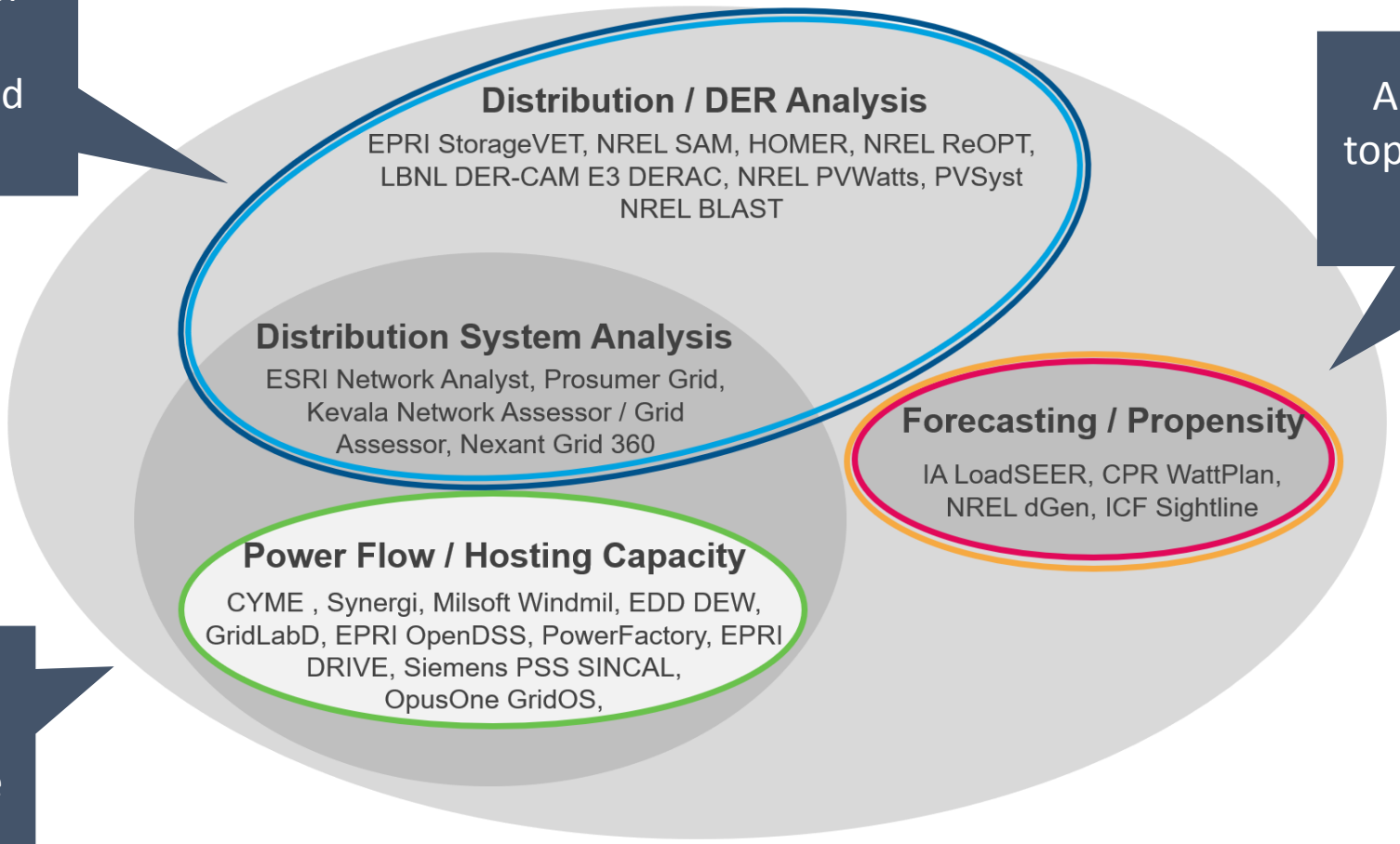
Solutions to meet changing system needs

Data sharing between G/T/D planning

Aligning timeframes and informing subsequent cycles

Evolution of Planning Tools

New methods for solution identification and evaluation



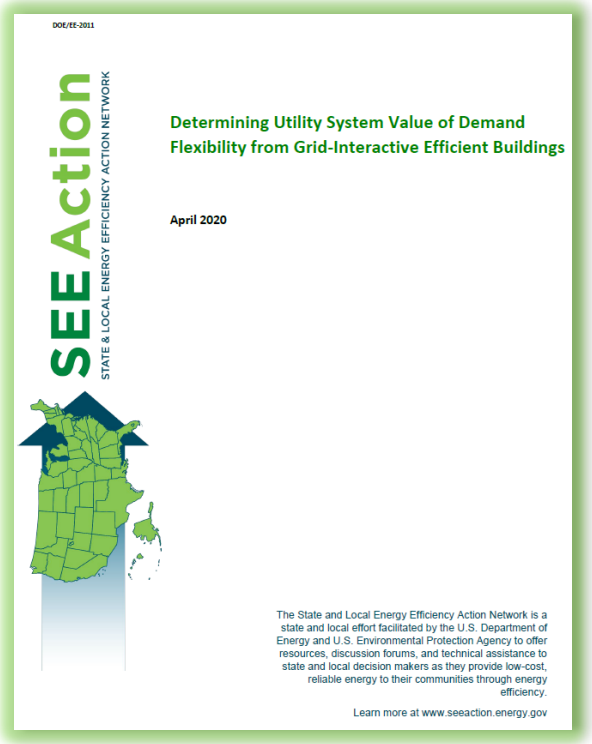
Alignment between top-down and bottom-up descriptions

Continual evolution of planning and interconnection use cases

Technical Assistance to States on Economic Valuation of Energy Resources

Enhanced Valuation Methods – Seven Considerations to Account for:

1. *All* substantive and reasonably quantifiable electric utility system economic impacts from DERs, including the value of resilience and security
2. Variations in value based on *when* DERs provide grid services
3. Variations in value based on *where* DERs provide grid services
4. The impact of *distribution* system savings on *transmission* and *generation* system value
5. Variations in value due to interactions *between* DERs
6. Variations in value due to interactions between DERs *and other* system resources
7. Benefits across the *full expected lives* of the DERs



https://emp.lbl.gov/publications/determining-utility-system-value

Discussion

- Are there opportunities for new efforts to advance OE priorities that can build on the progress of the Task Force?

- What technical, administrative, and other barriers impede a more integrated, optimized approach to planning across the electricity system? How can those barriers be addressed?

- What gaps in data, information, and tools need to be filled to support success?

- Other thoughts?